REMARKS

Specification

The abstract has been amended to have the proper language and format.

Drawings

A proposed drawings changed are included herein to address the informalities in the drawings.

Claim Objections

To obviate the objection to claim 19, this claim was amended to depend on claim 12 instead of on claim 9.

Claim Rejections – 35 USC §112

Claims 8, 11, 15, 18, and 23 to 25 have been amended to obviate the indefinite rejections described in the office action.

Claim Rejections – 35 USC §102

Claim 1, 2, 4 to 6, 12, 13, 15, and 16 have been rejected as being anticipated by Armezzani et al ("Armezzani"). Applicants submit that the cited claims are not anticipated by the prior art for the following reasons.

Claim 1 recites:

> 1. (Amended) A sheet-like board member comprising:
> a first planar surface;
> a second planar surface disposed opposite to the first surface, said second planar surface having a semiconductor element mount region defined thereon; and
> a mask disposed on the second planar surface and has a pattern corresponding to a plurality of first pads formed in or in the vicinity of the semiconductor element mount region, **said mask comprising a conductive film.** (Emphasis added.)

Armezzani does not disclose at least the above bolded feature. Armezzani discloses a solder pads that is a positive photoresist on column 5, line 62 to column 6, line 2. However, Armezzani does not disclose, teach, or suggest a mask that is also a conductive film. This is acknowledged by the Examiner on page 7 of the office action regarding claim 3. At least for this reason, claim 1 is not anticipated by the cited prior art.

Claims 2, 4, and 6 depend from claim 1. Thus, at least for the same reason as claim 1, claim 2, 4, and 6 are novel over the cited prior art.

Amended claim 12 recites as follows:

> 12. (Amended) A sheet-like board member comprising:
> a first planar surface;
> a second planar surface disposed opposite to the first planer surface;
> protuberances formed on said second planar surface;
> **a conductive film on each of said protuberances,**
> wherein the protuberances comprise a plurality of first pads in or in the vicinity of a semiconductor element mount region defined on the second planar surface. (Emphasis added.)

Armezzani does not disclose at least the above bolded feature. Nowhere does Armezzani disclose a conductive film on each of the protuberances. Thus, at least for this reason, claim 12 is not anticipated by the cited prior art.

Claims 13, 15, and 16 depend from claim 12. Thus, at least for the same reason as claim 12, these claims are not anticipated.

Claims 1, 7, 8, 12 to 14, 17, 18, and 20 have been rejected as being anticipated by Hashemi et al. ("Hashemi"). However, these claims are not anticipated by Hashemi at least for the same reasons given for the rebuttal to Armezzani. Hashemi disclose a solder mask areas 402. However, Hashemi does not disclose, teach, or suggest "said mask comprising a conductive film" of claim 1 or "a conductive film on each f said protuberances" of claim 12. Thus, claims 1 and 12 are not anticipated by Hashemi at least for the above reasons.

Claims 7 and 8 depend from claim 1. Therefore, these claims are not anticipated at least for the same reason as claim 1. Claims 14, 17, 18, and 20 depend from claim 12 directly or

indirectly. This at least for the same reason as claim 12, these claims are not anticipated by the cited prior art.

Claim 26 has been allowed. However, the claim was amended to clarify some of the language to more distinctly claim what the applicants regard as the invention. For example, the "sealed space" feature was deleted because it does not form a part of the sheet-like board member. It is asserted that claim 26 as amended is still allowable over the cited prior art.

Claims 3 and 4 have been canceled. Claims 9, 10, 19, 21, and 22 are allowable for the reasons stated in the office action and for depending from allowable claim 1 or 12 for the reasons stated in the above paragraphs.

New claim 32 that depends from claim 26 was added. New independent claim 33 claims a mask for etching disposed on the second planar surface. Armezzani and Hashemi both disclose a solder mask but it is not used for etching. Thus, at least for this reason,claim 32 is not anticipated by Armezzani or Hashemi. Claims 34 to 43 depend on claim 33 directly or indirectly. Thus, at least for the same reason as claim 33, claims 34 to 43 are believed to be allowable over either of the cited prior art references.

All pending claims 1, 2, 5 to 26, and 32 to 43 are believed to be allowable for the foregoing reasons.

Attached is a marked-up version of the changes being made by the current amendment.

Applicant asks that all claims be allowed. Enclosed is a check for excess claim fees and a check for the Petition for Extension of Time fee (two months). Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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Version with markings to show changes made

In the claims:

Claims 2, 3 and 27 to 31 have been cancelled without prejudice.

Claims 1, 4, 6 to 26 have been amended as follows (unamended claims are in small, bold type-face):

1. (Amended) A sheet-like board member [including] comprising:

a first planar surface; [and]

a second planar surface [provided opposite] disposed opposite to the first surface, [comprising:] said second planar surface having a semiconductor element mount region defined thereon; and

a mask [which is formed] disposed on the second planar surface and has a pattern corresponding [corresponds] to a plurality of first pads formed in or in the vicinity of [a] the semiconductor element mount region [or in the vicinity of the semiconductor element mount region], said mask comprising a conductive film.

2. (Canceled)

3. (Canceled).

4. (Amended) The sheet-like board member as defined in claim 1, further comprising: [wherein]

a wiring disposed on said second planar surface, wherein

the mask is formed on a region corresponding to [a] the wiring [directly or] integrally connected to one or more of the first pads.

5. The sheet-like board member as defined in claim 1, wherein the first pads are bonding pads or pads on which solder balls are to be fixed.

6. (Amended) The sheet-like board member as defined in claim 1, wherein [a] the conductive coating film [or a photoresist film which is substantially identical with a die pad is provided] is disposed in the semiconductor element mount region to form a die pad.

7. (Amended) The sheet-like board member as defined in claim 1, wherein [a] the conductive coating film [or photoresist film which is substantially identical with to a passive element die pad and/or outer lead electrode is formed] is disposed on the second planar surface to form a passive element die pad and/or outer lead electrode.

8. (Amended) The sheet-like board member as defined in claim [1] 7, wherein [the] a passive element to be placed on the passive element die pad [is] comprises a chip resistor or a chip capacitor.

9. (Amended) The sheet-like board member as defined in claim 1, wherein patterns which are substantially identical with guide pins or guide holes into which the guide pins are [to be] inserted are formed in mutually-opposing side of the sheet-like board member.

10. (Amended) The sheet-like board member as defined in claim 1, wherein the sheet-like board member [is made of] comprises a pressed metal.

11. (Amended) The sheet-like board member as defined in claim 1, wherein the sheet-like board member is formed from a conductive foil, and the conductive [coating] film is formed [from] of a material [differing] different from that of the conductive foil.

12. (Amended) A sheet-like board member [including] comprising:

a first planar surface; [and]

a second planar surface [on which protuberances of desired heights are formed and which is provided] disposed opposite to the first planer surface; [,]

protuberances formed on said second planar surface;

a conductive film on each of said protuberances,

wherein the protuberances [constitute] comprise a plurality of first pads in or in the vicinity of a semiconductor element mount region [and the vicinity thereof] defined on the second planar surface.

13. (Amended) The sheet-like board member as defined in claim 12, wherein the protuberances [constitute the] comprise wirings integrally formed with the first pads.

14. (Amended) The sheet-like board member as defined in claim 13, wherein the protuberances [constitute] comprise second pads integrally formed with the wirings.

15. (Amended) The sheet-like board member as defined in claim 12, wherein the first pads [and/or second pads are] comprise bonding pads, or pads on which solder balls or bumps are [to be] mounted.

16. (Amended) The sheet-like board member as defined in claim 12, wherein the protuberances [constitute] comprise die pads [to be] provided in the semi-conductor element mount region.

17. (Amended) The sheet-like board member as defined in claim 12, wherein the protuberances [constitute] comprise passive element die pads and/or outer lead electrodes.

18 (Amended) The sheet-like board member as defined in claim [14] 17, wherein [the] a passive element to be disposed on the passive element die pad [is] comprises a chip resistor or chip capacitor.

19. (Amended) The sheet-like board member as defined in claim [9] 12, wherein patterns which are substantially identical with guide pins or guide holes into which the guide pins are [to be] inserted are formed in mutually-opposing sides of the sheet-like board member.

20. (Amended) The sheet-like board member as defined in claim 12, wherein the protuberances are arranged in a plurality of patterns [formed from the protuberances are taken] as a unit, and the unit is arranged [on the sheet-like board member] in a matrix pattern on the sheet-like board member.

21. (Amended) The sheet-like board member as defined in [of] claim 12, wherein the sheet-like board member [is made of] comprises mainly Cu, A1, an Fe-Ni alloy, a Cu-A1 multi-layered member, or an A1-Cu-A1 multi-layered member.

22. (Amended) The sheet-like board member as defined in claim 12, wherein [a] the conductive coating film [which] is formed [from] of material [differing] different from that of the protuberances [is] and formed on the upper surfaces of the protuberances.

23. (Amended) The sheet-like board member as defined in claim 12, wherein [the] side surfaces of the protuberances have an anchoring structure.

24. (Amended) The sheet-like board member as defined in claim 12, [wherein] further comprising:

the conductive [coating] film [constitutes] comprising an anvil-shaped structure in the vicinity of [the] a top surface[s] of each protuberance[s].

25. (Amended) The sheet-like board member as defined in claim 12, wherein the conductive [coating] film [is formed from] comprises Ni, Au, Ag or Pd.

26. (Amended) A sheet-like board member [including] comprising:

[an] a planar surface [underside whose portions to be encapsulated in plastic are wholly planar];

a sheet-like front side of predetermined thickness which is provided on the planar surface [under]side; [, wherein]

a plurality of first pads [to be] formed in or in the vicinity of a semiconductor element mount region defined on the planar side; [or the vicinity thereof and]

protuberances formed on said planar surface and [which are to become] include wirings integrally formed with the first pads, [are] said plurality of first pads and said protuberances formed within [a region enclosed by] an abutting region defined on said planar underside, said abutting region provided to [which is brought into] contact with an upper metal mold [; and

a sealed space which is defined between the first side pads and the upper metal mold and at least within the area of the first side pads enclosed by the abutting region].

New claims 32 to 43 have been added.

32. (New) The sheet-like board member of claim 26, wherein said planar surface having the protuberances, some of which semiconductor elements are disposed thereon, are all encapsulated in plastic.

33. (New) A sheet-like board member comprising:

a first planar surface;

a second planar surface disposed opposite to the first surface, said second planar surface having a semiconductor element mount region defined thereon; and

a mask for etching disposed on the second planar surface and having a pattern corresponding to a plurality of first pads formed in or in the vicinity of the semiconductor element mount region.

34. (New) The sheet-like board member as defined in claim 1, wherein the mask comprises a photoresist.

35. (New) The sheet-like board member as defined in claim 1, wherein the mask comprises a conductive film.

36. (New) The sheet-like board member as defined in claim 33, further comprising:

a wiring disposed on said second planar surface, wherein

the mask is formed on a region corresponding to the wiring integrally connected to one or more of the first pads.

37. (New) The sheet-like board member as defined in claim 33, wherein the first pads are bonding pads or pads on which solder balls are to be fixed.

38. (New) The sheet-like board member as defined in claim 33, wherein the conductive coating film is disposed in the semiconductor element mount region to form a die pad.

39. (New) The sheet-like board member as defined in claim 33, wherein the conductive coating film is disposed on the second planar surface to form a passive element die pad and/or outer lead electrode.

40. (New) The sheet-like board member as defined in claim 39, wherein a passive element to be placed on the passive element die pad comprises a chip resistor or a chip capacitor.

41. (New) The sheet-like board member as defined in claim 33, wherein patterns which are substantially identical with guide pins or guide holes into which the guide pins are inserted are formed in mutually-opposing side of the sheet-like board member.

42. (New) The sheet-like board member as defined in claim 33, wherein the sheet-like board member comprises a pressed metal.

43. (New) The sheet-like board member as defined in claim 33, wherein the sheet-like board member is formed from a conductive foil, and the conductive film is formed of a material different from that of the conductive foil.

In the abstract:

[In the present invention there is formed a] A sheet-like board member [50 having] has conductive coating films, such as first pads [55] and die pads [59], formed on the member. [thereon or a] The sheet-like board member [50 which has been] can be half-etched by using the conductive coating films. [such as first pads 55 and die pads 59]. A hybrid IC can be manufactured by [means of utilization of post-processing processes of a semiconductor manufacturer] using the sheet-like board member. [Further, a hybrid IC can be manufactured without adoption of a support board, and hence there can be manufactured a hybrid IC which is of lower profile and has superior heat dissipation characteristics.]

FIG.5A

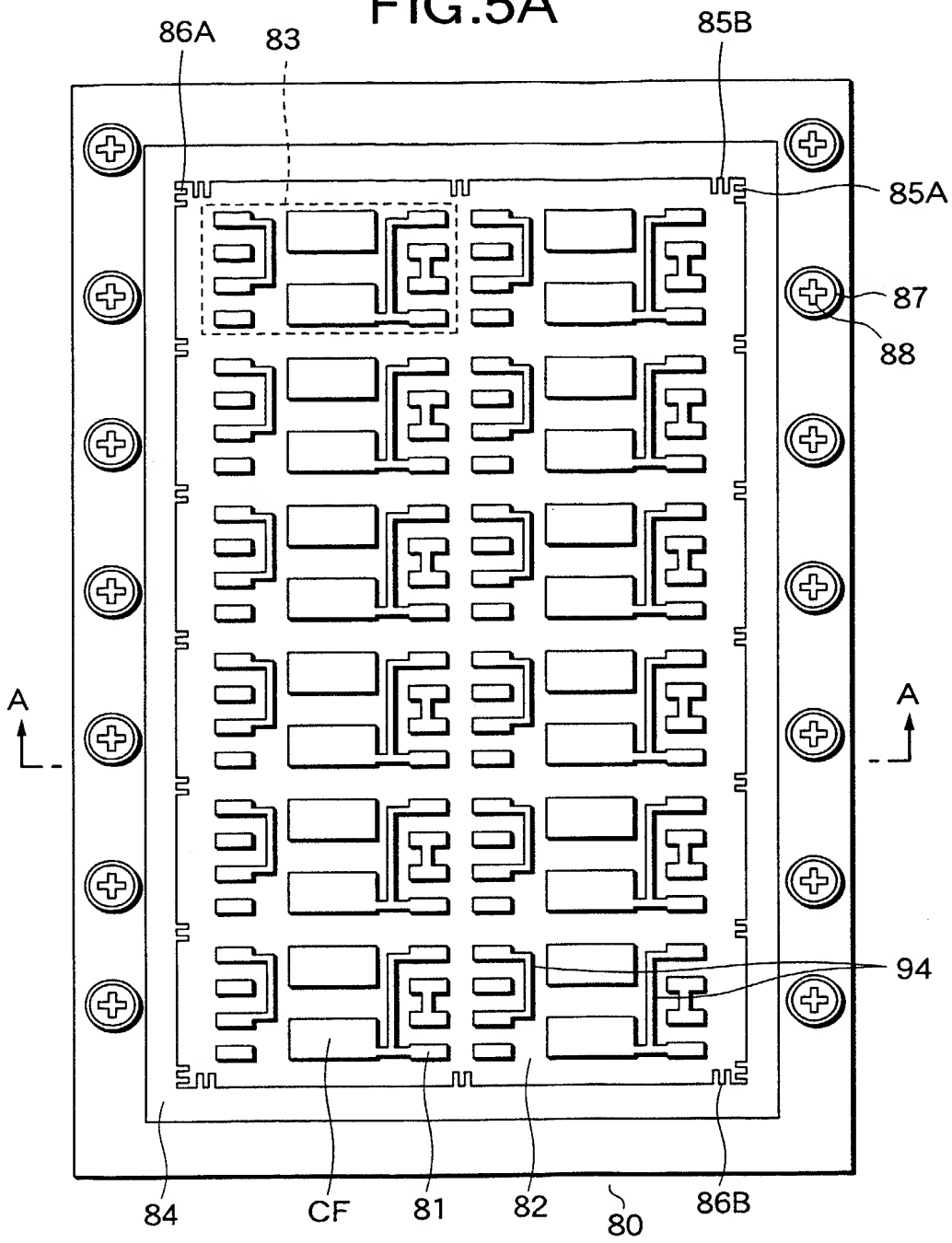

FIG.5B

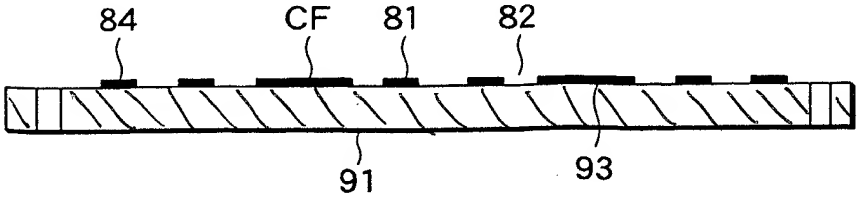

FIG.6A

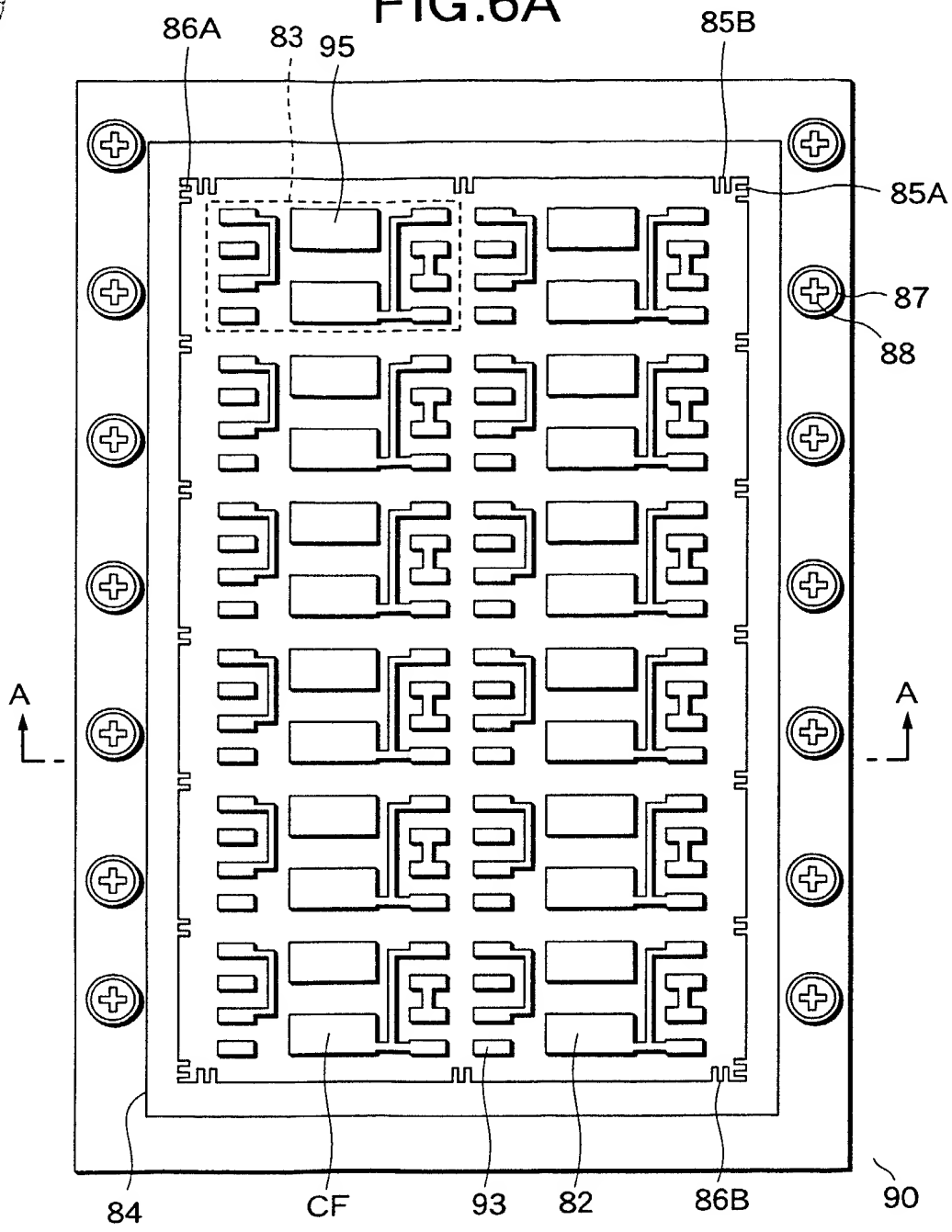

FIG.6B

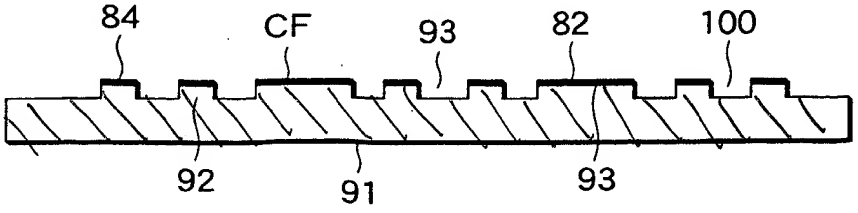

FIG.7A

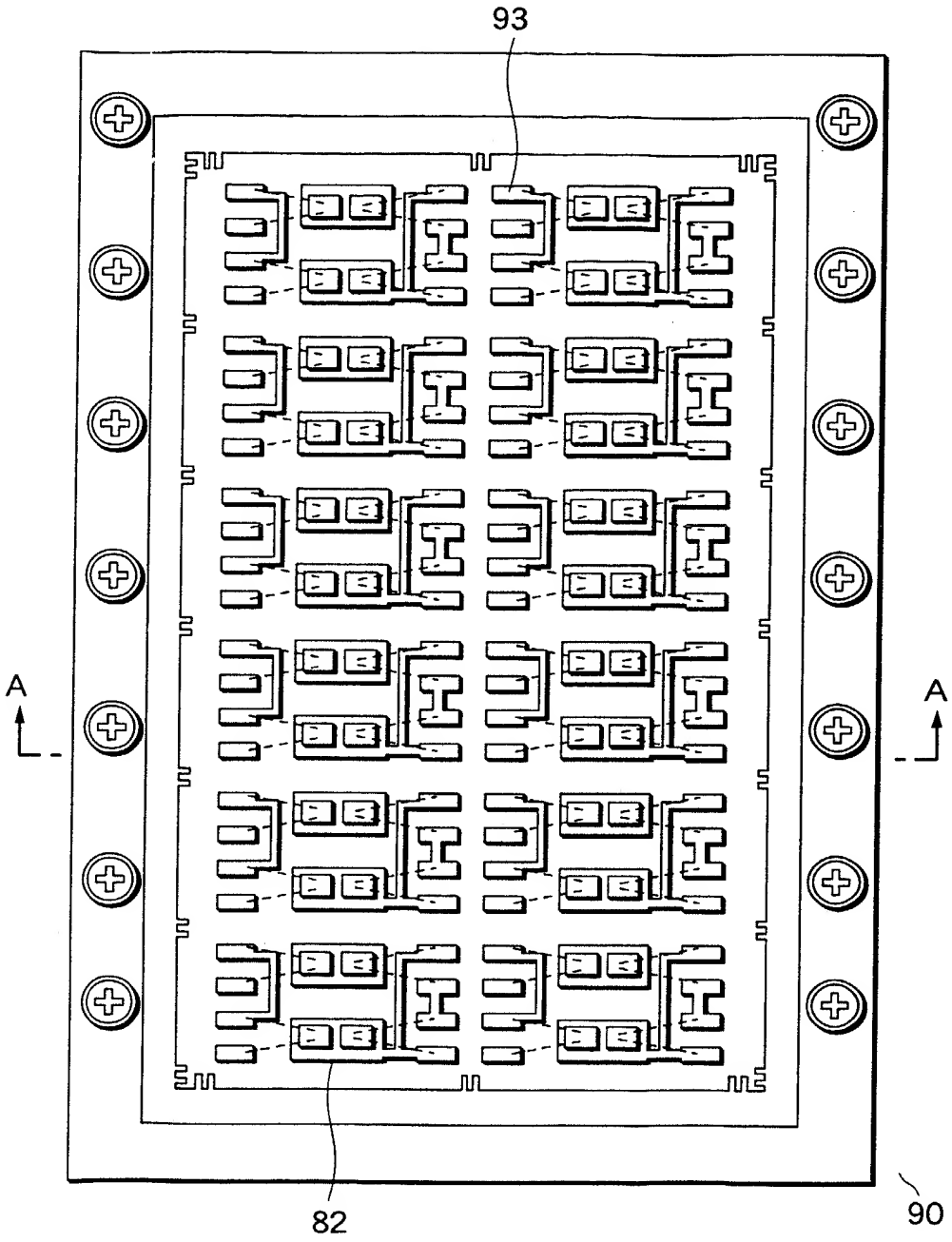

FIG.7B

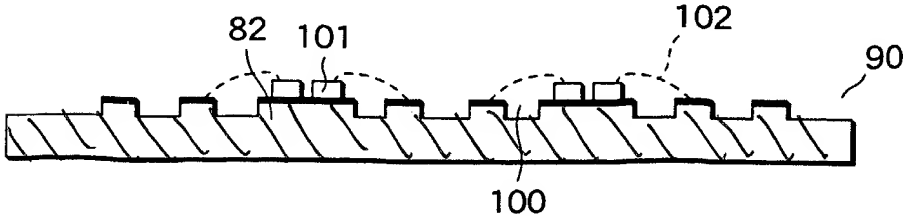

FIG.8A

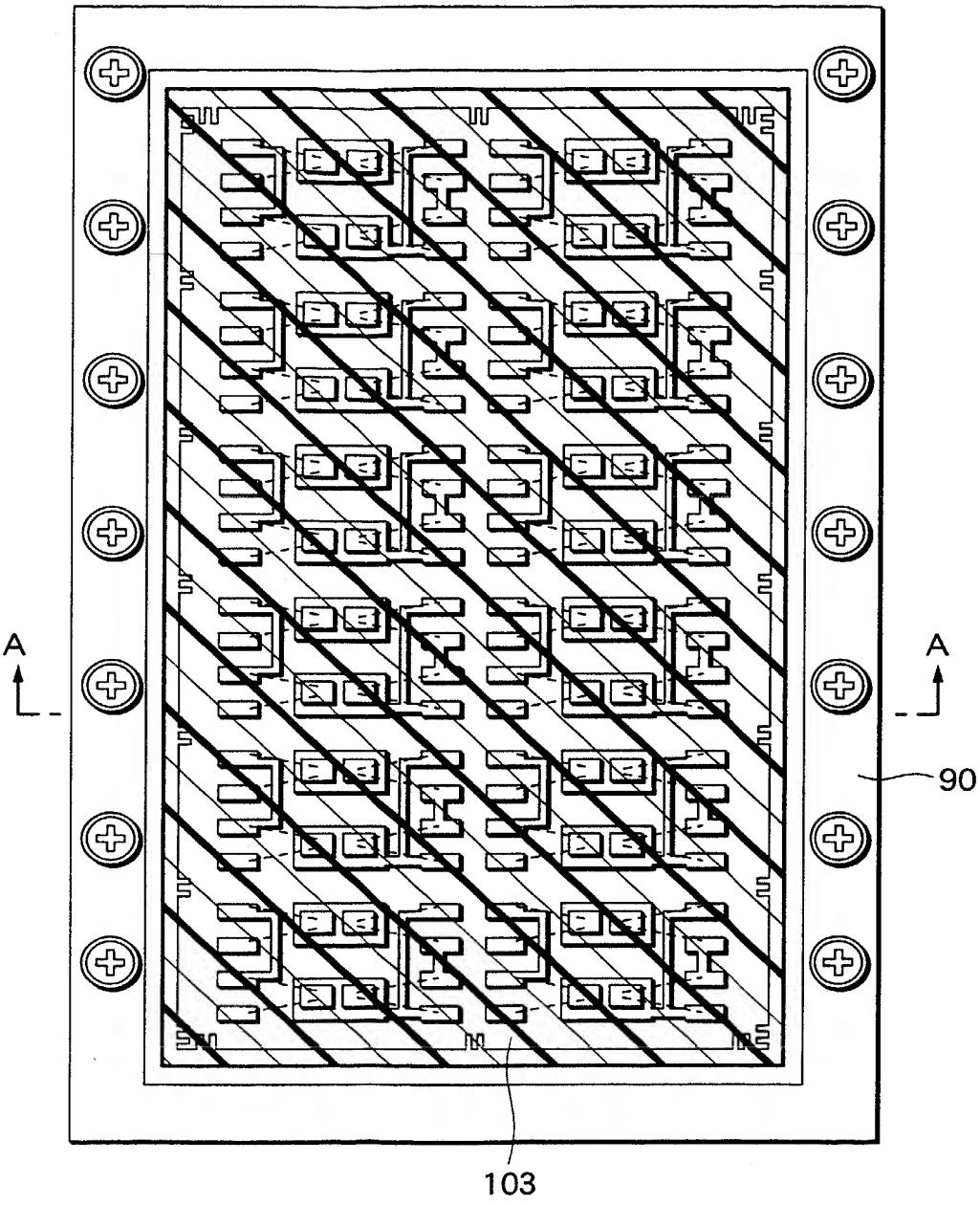

FIG.8B

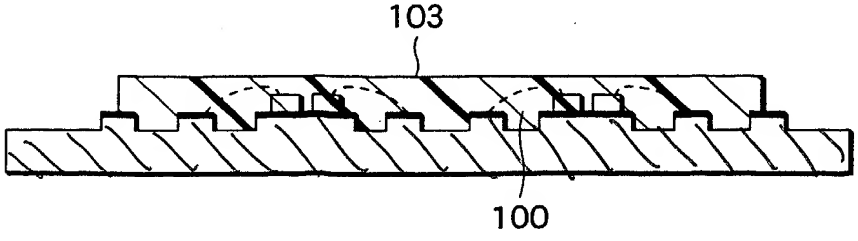

FIG.12A

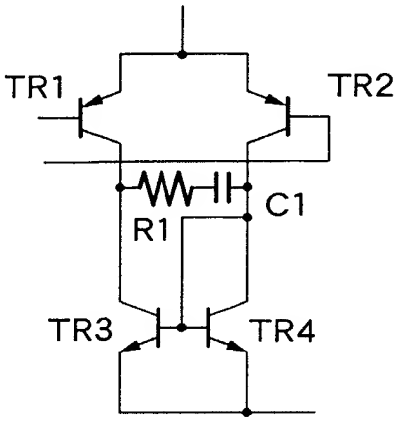

FIG.12B

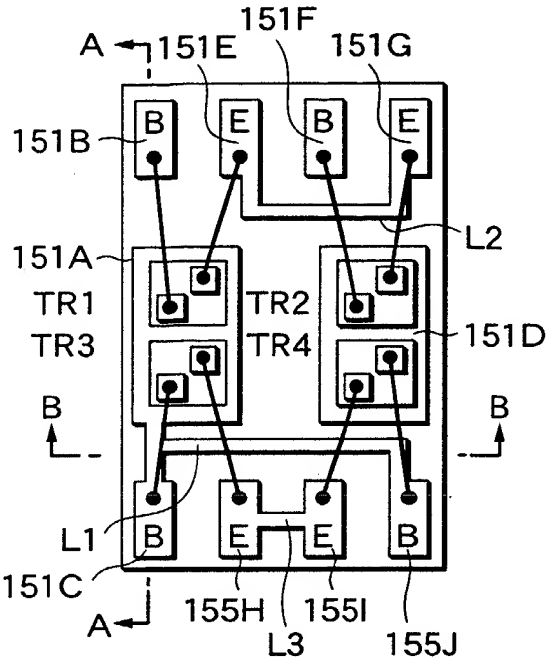

FIG.12C

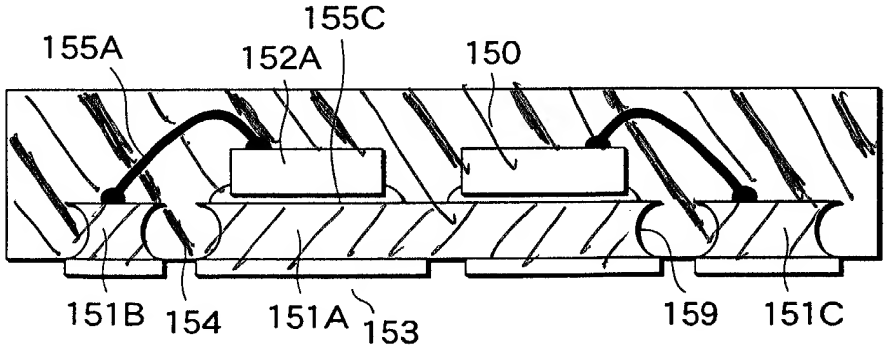

FIG.12D

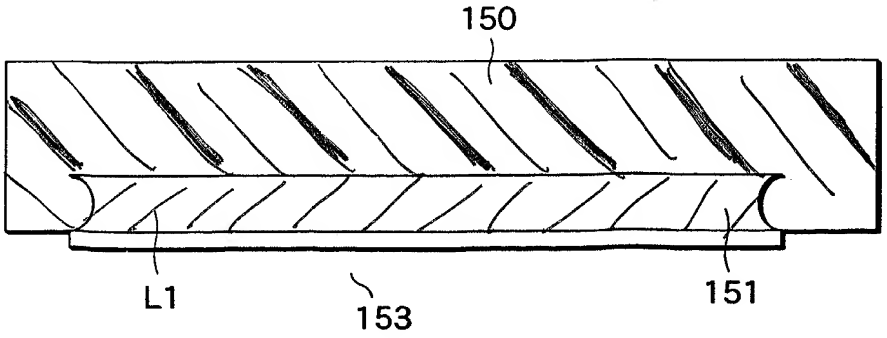

FIG.18A

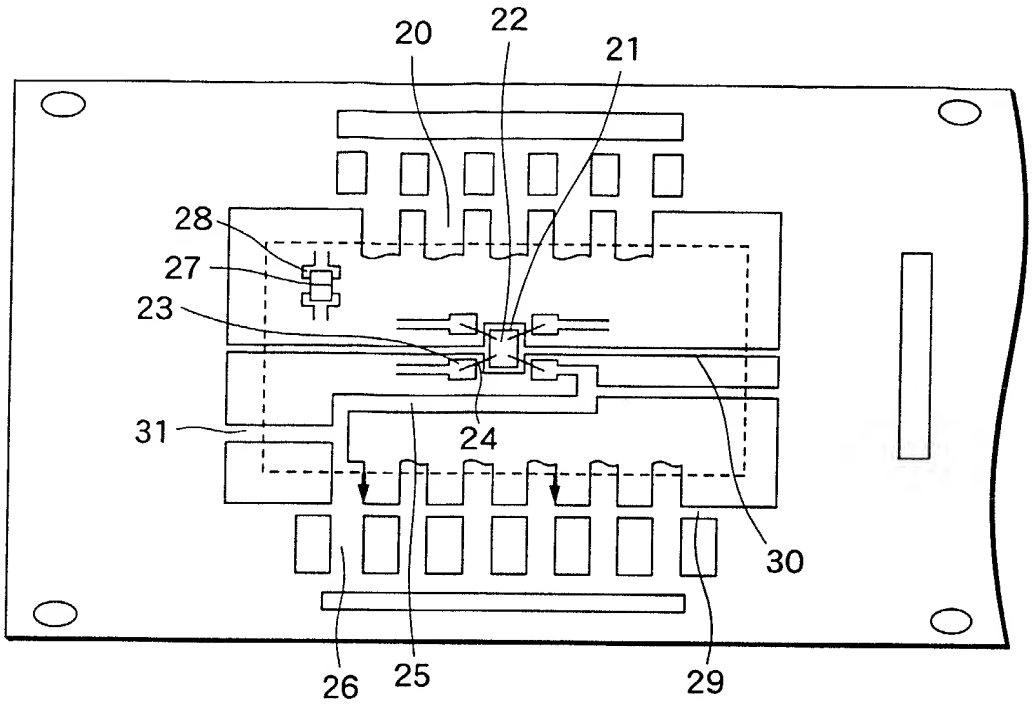

FIG.18B